

2.0 ALTERNATIVES ANALYSIS

I-49 South was initially undertaken as two separate Sections of Independent Utility (SIU) that were studied concurrently. A DEIS was prepared and published for SIU 1 on August 12, 2005; SIU 1 extended from the LA 1 / LA 308 interchange at Bayou Lafourche near Raceland in Lafourche Parish to the Davis Pond Diversion in St. Charles Parish. At the same time, a DEIS was prepared for SIU 2, which extended from LA 306 in St. Charles Parish to the completed portion of the elevated Westbank Expressway near Ames Boulevard in Jefferson Parish. A full range of alternatives was developed for each SIU during the respective scoping processes.

Following the availability of the DEIS for SIU 1, the DOTD and FHWA determined that I-49 South would be advanced as a single EIS to avoid any possibility of segmentation. Further, and as a consequence of Hurricane Katrina and the process of combining the two EIS's, DOTD and FHWA selected a Preferred Alternative which was presented in the combined DEIS that was made available on February 16, 2007. The Preferred Alternative has subsequently been designated the Selected Alternative in this FEIS.

This alternatives analysis chapter presents the Selected Alternative in the context of a full range of alternatives, relevant background and rationale. Included is a summary of the NEPA Planning process undertaken to develop and evaluate the alternatives:

- Concept Development;
- Alternatives Refinement;
- Alternatives Selection for the SIU EIS's;
- The Preferred Alternative; and
- The Selected Alternative.

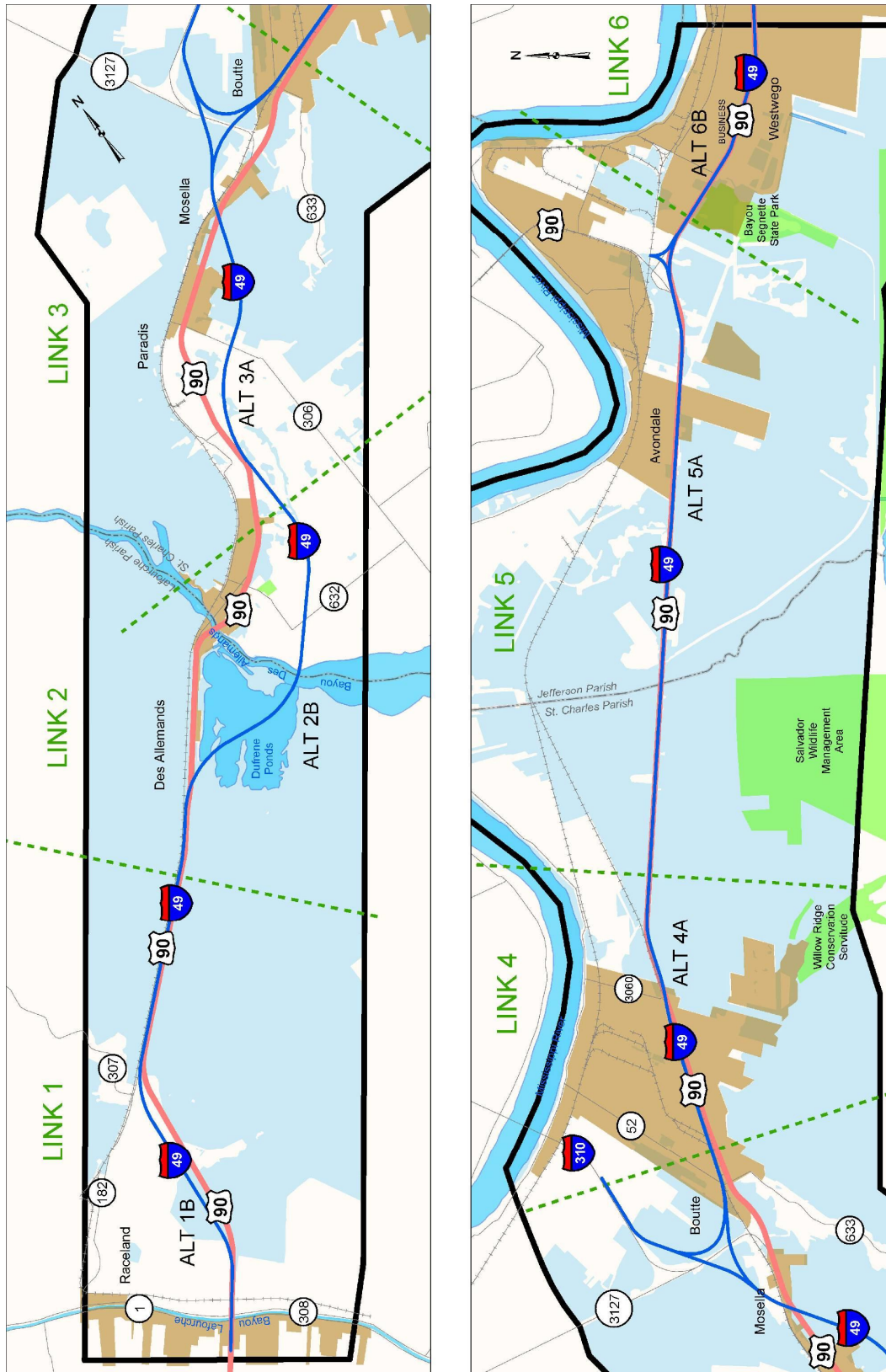
2.1 Preferred Alternative

The Preferred Alternative, described in this section and presented in **Exhibit 2-1**, was a preference based on early coordination and public comment. The designation of the Selected Alternative for inclusion in this FEIS was deferred until the comments were received during the public comment period and fully evaluated.

As with the Preferred Alternatives proposed for SIU 1 and SIU 2, pursuant to NEPA and the 404/10 Concurrent Process Agreement, DOTD and FHWA consulted with the agencies discussed in 2.3.1 regarding the selection of the Preferred Alternative for the DEIS in each of the six links that comprise the combined project corridor.

The project is made up of links which are portions of roadway alignment that are distinguished by geometry, environmental conditions, and/or use of the US 90 right-of-way. Each Build Alternative, including the Preferred Alternative, is comprised of six links. Alternatives were developed at the Link level such that an Alternative could be assembled from various combinations of Link Alternatives. The Preferred Alternative is made up of the following Link Alternatives: 1B, 2B, 3A, 4A, 5A and 6B. Each is described and depicted below.

Exhibit 2-1 Preferred Alternative



2.1.1 Alternative 1B

Link 1 extends from LA 1 to just west of Dufrene Ponds. Two Alternatives have been analyzed for Link 1. Alternative 1A, a partly at-grade alignment, was included in the SIU 1 DEIS. Alternative 1B is fully elevated and is the preferred in Link 1. It is described below and shown in **Exhibit 2-2**. Alternative 1A is described in Section 2.6.1.1.

Alternative 1B evolved from early decisions that I-49 South should follow the US 90 right-of-way (ROW) as closely as possible, and that an interchange with LA 182 should be provided. Following the 2005 hurricane season, it was determined that the I-49 mainline should be elevated throughout this project. Other Link 1 goals that the design of 1B would achieve include:

- An elevated mainline across the Barataria Basin between LA 182 and Bayou Des Allemands;
- A route for vehicles traveling on LA 308 to travel westbound on I-49 and for eastbound vehicles on I-49 to reach LA 308;
- The provision of local access to the extent possible along the existing US 90 ROW;
- The improvement of traffic operations at the intersections of LA 182 with US 90 and with LA 307;
- The reduction or elimination of roadway-associated obstacles to surface flow in the Barataria Basin; and
- The assurance that the I-49 mainline would remain above the probable flood elevation.

East of the LA 182 interchange, Alternative 1A and Alternative 1B are identical. From LA 182 to the point that it ties into the Bayou Lafourche Bridge, Alternative 1B

Exhibit 2-2
Alternative 1B



would be elevated 16.5 feet above the grade of LA 182. The elevated mainline between LA 182 and the bridge would occupy a ROW separate from US 90. The separate ROW would allow the Parish to extend the remnant of US 90, operating as an access road for abutting properties, from its western termination to LA 308. This extension had been requested by the Parish early in the scoping process; constructing the extension is not part of the I-49 South project.

2.1.2 Alternative 2B

Link 2 extends from just west of Dufrene Ponds to about 2.3 miles west of Bayou Gauche Road (LA 306). Two alignment Alternatives were developed for Link 2: 2A and 2B. Alternative 2B is the preferred and is described below and shown in **Exhibit 2-3**; Alternative 2A is discussed in Section 2.6.1.2 and described as Alternative FF in **Appendix 2-A**.

Alternative 2B would extend from the elevated eastern end of Link 1 to an interchange with US 90 at the western end of the developed area along Dufrene Ponds. 2B would then cross the Ponds and Bayou Des Allemands, pass through the Paradis Wetland Mitigation Bank, and terminate near the interchange with LA 635 between Des Allemands and Paradis in St. Charles Parish. Alternative 2B is essentially unchanged from that which was presented in the DEIS for SIU 1. There is a slight realignment within the vacant area of the Paradis Mitigation Bank as it approaches its joining with Link 3. This is required by a realignment in Link 3 to provide the interchange with LA 635 that replaces the interchange with US 90 shown in the DEIS for SIU 1.

Alternative 2B would achieve the Link 2 goal of providing a freeway and an interchange providing access to US 90 for local access, while avoiding or minimizing the potential environmental impacts that characterized 2A.

Exhibit 2-3
Alternative 2B



2.1.3 Alternative 3A

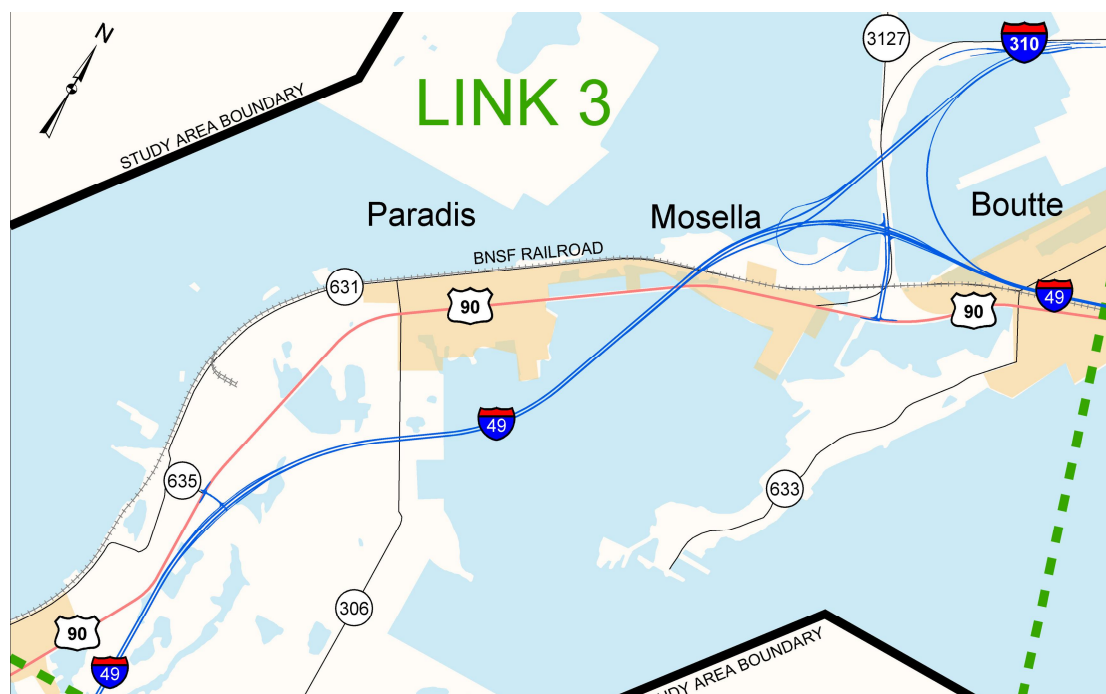
Link 3 extends from just west of LA 306 to just east of Paul Mallard Road (LA 52). Two alignment Alternatives were developed for Link 3: 3A and 3B. Alternative 3A is the preferred and is described below and shown in **Exhibit 2-4**; Alternative 3B is described in Sections 2.5.6.1 and 2.6.1.3.

Alternative 3A would begin at the point that I-49 becomes parallel to US 90 in the Paradis Wetland Mitigation Bank, have an interchange with LA 635, travel south of Paradis, and turn north between Paradis and Mosella to cross US 90 and the BNSF Railroad. Alternative 3A would then curve to the right, cross LA 3127, and continue east to join Link 4 parallel to and on the north side of the BNSF Railroad. Interstate-to-interstate ramps connecting I-49 South to I-310 and a diamond interchange with LA 3127 would be constructed as part of Alternative 3A. Alternative 3A also would include a new southern terminus for LA 3127 with a single signalized intersection at US 90 to replace the two intersections now operating.

Alternative 3A is substantially the same as was presented in the SIU 1 DEIS. Alignment refinements not found in that document include:

- An interchange with LA 635 rather than the interchange with US 90 to serve the area at the western end of Link 3;
- A modified configuration of the I-49 interchange with I-310 to provide for the ramp from southbound I-49 to I-310 to depart from the right;
- A modified alignment of the ramp from northbound I-49 to northbound I-310; and
- The realignment of I-49 northward to the east of LA 3127 to accommodate a realignment of Link 4.

**Exhibit 2-4
Alternative 3A**



These refinements, when compared to the SIU 1 DEIS alignment, reduce the number of acres of potentially impacted wetlands, but require the taking of an additional developed property. Of the Link 3 Alternatives, 3A would require fewer relocations and fewer acres of potential wetland impacts, and it would have less likelihood of causing traffic impacts during construction as no existing local roadways would have to be relocated.

As 3A crosses Old Spanish Trail (LA 631) and the BNSF Railroad, it results in some residential relocations and noise impacts to properties in a minority or low income neighborhood in Mosella that is adjacent and parallel to the railroad. There also are residential relocations and noise impacts that result in a minority or low income neighborhood in Boutte between LA 3127 and the Monsanto Plant.

2.1.4 Alternative 4A

Link 4 extends from just east of Paul Maillard Road to the Davis Pond Diversion canal. Two alignment Alternatives were developed for Link 4: an entirely elevated 4A and a partially elevated 4B. Alternative 4A is the preferred and is described below and shown in **Exhibit 2-5**; Alternative 4B is described in Sections 2.5.6.2 and 2.6.1.4.

Alternative 4A would be aligned parallel to the BNSF Railroad as it crosses the Monsanto property and then turn southeasterly to cross the railroad into the US 90 ROW just west of Barton Avenue. East of the Willowdale Boulevard interchange, 4A would continue within the US 90 ROW. US 90 would be converted to a 2-lane 2-way access road where it and I-49 South cross the Davis Pond Diversion canal.

Exhibit 2-5
Alternative 4A



The alignment of Alternative 4A is substantially the same as presented in the SIU 1 DEIS. The two refinements made include:

- The realignment of I-49 northward between Link 3 to the west and the crossing of the BNSF Railroad near Barton Avenue; and

- The widening of the ROW between Barton Avenue and the Davis Pond Diversion Canal.

The first refinement eliminates the potential for conflicts with the operation of the BNSF Railroad and simplifies coordination with Monsanto regarding required infrastructure relocations. The second refinement improves the geometry of the Willowdale interchange.

Of the Link 4 Alternatives, 4A would be entirely elevated. Compared to 4B, the other Link 4 Alternative, Alternative 4A has the potential to require one commercial relocation, but it would have considerably less impact on traffic during construction. 4B, on the other hand, would require numerous relocations and would relocate US 90 to the south.

2.1.5 Alternative 5A

Link 5 extends from the Davis Pond Diversion to the beginning of US 90 Business. Three alignment Alternatives were developed for Link 5: an entirely elevated 5A, a partially elevated 5B and a partially elevated 5C. Alternative 5A is the preferred and is described below and shown in **Exhibit 2-6**; Alternatives 5B and 5C are described in Section 2.5.6.3.

Alternative 5A would extend from the Davis Pond Diversion Canal to Avondale on the existing US 90 alignment. I-49 would be on two elevated structures near the edges of the ROW with a frontage road between them on the existing fill section of US 90. The ROW in this area would be expanded slightly to provide the desirable 25 feet outside proposed structures. As currently proposed, the frontage road would be a 2-way, 2-lane facility as the traffic projection does not justify a greater capacity. The ROW is adequate to provide a 4-lane frontage road with a 16 foot median designed to urban standards if traffic projections can justify this capacity at the time that Final Design is initiated.

In Avondale, the ROW would be widened to provide 4-lane frontage roads on each side of elevated 4-lane I-49 in the center of the ROW. All additional required ROW would be acquired south of the existing ROW where there is less development. This section would continue to Lapalco Boulevard. At the western end of Avondale, a northbound entrance to I-49 and a southbound exit would be provided. West of Lapalco Boulevard, a northbound exit and a southbound entrance to I-49 would be provided. A full diamond interchange would be provided at Lapalco Boulevard.

The ROW here is adequate to provide 6 lanes on I-49 and/or the frontage roads if traffic projections can justify this capacity at the time that Final Design is initiated.

East of Lapalco Boulevard, the Huey P. Long interchange begins. Alternative 5A would provide new ramp connections to and from the I-49 mainline, the frontage roads, and the Bridge Approach (US 90 East) in all directions. North of the Union Pacific Railroad, LA 18 would be relocated to the south to eliminate the signalized intersection of US 90 and LA 18.

East of the interchange, Alternative 5A would transition to the elevated Westbank Expressway with a 6-lane mainline and a 6-lane frontage road.

The alignment of Alternative 5A has been modified since the third round of public information meetings for SIU 2. The five refinements were:

- A widened ROW west of Avondale to provide 25 feet outside the elevated structure;
- A widened ROW in Avondale to provide sufficient width to expand the capacity of the mainline and the frontage roads in the future if demand increases;
- Reorganization of the ramps to provide two full diamond interchanges, one with Lapalco Boulevard as the connecting road and the other with the combination of Dexter Drive / Homeplace Street, Butler Road, and Avondale Garden Road as connecting roads;
- Removal of the southbound exit to Segnette Boulevard; and
- Realignment of LA 18 at US 90 to reflect the change in the Regional Transportation Plan that routes LA 18 on the US 90 alignment between the intersection of the two roads and West Bridge Circle.

**Exhibit 2-6
Alternative 5A**



Of the Link 5 Alternatives, 5A is the only Alternative in which the mainline of I-49 would be entirely elevated. Alternative 5A would have the least number of acres of potentially impacted wetlands and no unresolved conflicts with proposed development plans in the area. Acquisition of ROW would result in relocation of some commercial and residential properties on the south side of US 90.

2.1.6 Alternative 6B

Link 6 extends from the beginning of US 90 Business to Ames Boulevard. Two Alternatives were developed for Link 6: a partially elevated 6A and a fully elevated 6B. Alternative 6B is the preferred and is described below and shown in **Exhibit 2-7**; Alternative 6A is described in Sections 2.5.6.4 and 2.6.2.4.

Alternative 6B would provide a 6-lane mainline and a 6-lane frontage road system in the existing ROW of US 90 Business. ROW acquisition would be limited to a small area along the southern edge at the far western end of the Link.

The alignment and configuration that is designated Alternative 6B was refined after the third round of public information meetings for SIU 2 as a consequence of the decision to create a fully elevated mainline. Prior to the Public Hearing, this alternative was presented to Public Officials of Jefferson Parish and the City of Westwego and at a fourth public information meeting that was held in Jefferson Parish.

**Exhibit 2-7
Alternative 6B**



Design refinements include:

- Full elevation of mainline I-49 to provide an interstate highway that would not flood. Alternative 6A descended to grade just west of Ames Boulevard and returned to an elevated section farther west;
- A northbound entrance to I-49 and southbound exit between that create a diamond when paired with the existing ramps at Ames Boulevard; and
- A full diamond interchange at Victory Drive.

Alternative 6B is the only Link 6 Alternative that is fully elevated. Compared with the other Link 6 Alternative, Link 6B closes only one existing cross street, and it would not impact Bayou Segnette State Park or Catfish Bourgeois Park, Section 4(f) properties.

2.2 Selected Alternative

Following the comment period on the DEIS for the combined project that closed on April 9, 2007, a review of the comments received, and a coordination meeting with the agencies on July 25, 2007, the Preferred Alternative included in the DEIS for the combined project was designated the Selected Alternative to be included in this FEIS.

2.2.1 Project Atlas

A Project Atlas at a scale of one inch equals 200 feet provides illustrations of the Selected Alternative at the end of this chapter. In addition to providing detailed illustrations of the proposed roadway improvements, the atlas maps indicate many environmental conditions in the corridor. Plates 91 and 92 are maps at a scale of one

inch equals 800 feet that illustrate on single images the entire interchanges of I-49 with I-310 and LA 3127 in St. Charles Parish and of I-49 with US 90 and US 90 Business in Jefferson Parish.

The Atlas is organized by Link and includes a key map of each Link with numbered areas that relate directly to the subsequent maps at both scales. Drawings of typical sections of the alignment follow the map plates.

2.3 Planning Process

2.3.1 Public and Agency Participation and Coordination

Throughout the I-49 South planning process, extensive public involvement has been undertaken: three rounds of public information meetings plus an additional meeting in Jefferson Parish; informal meetings with community groups; meetings with public officials from Lafourche, St. Charles, and Jefferson Parishes; and a Public Comment Period following the availability of the DEIS for SIU 1.

Ongoing coordination between DOTD, FHWA, and the participating federal and state agencies has been a key element of this project. Throughout the remainder of this chapter, the agencies will be referenced as simply the Agencies. The Agencies and their roles are outlined below:

- Cooperating agencies are those invited by FHWA to participate in this capacity. Based on their acceptance, the agencies are responsible for providing relevant data in their possession and consulting throughout the project. Cooperating agencies for I-49 South include the U.S. Army Corps of Engineers (USACE), the U.S. Coast Guard (USCG) and the U.S. Fish and Wildlife Service (USFWS). Initially, the USCG was a cooperating agency for only SIU 1 as there are no navigable stream crossings in the former SIU 2.
- The signatories to the FHWA Region 6 Interagency NEPA and 404/10 Concurrent Process Agreement for Transportation Projects include, in addition to FHWA: the USACE; the USFWS; the U.S. Environmental Protection Agency (USEPA); and the National Oceanic and Atmospheric Administration (NOAA).
- Other permitting or regulatory agencies responsible for enforcing federal or state statutory requirements, including the issuance of permits, include: the Louisiana State Historic Preservation Officer (SHPO); the Louisiana Department of Wildlife and Fisheries (LDWF); Louisiana Department of Natural Resources (LDNR); and the Louisiana Department of Environmental Quality (LDEQ).

2.3.2 Steps in NEPA Planning

The development and evaluation of Alternatives for I-49 South was undertaken in accordance with NEPA using a step by step planning process leading to the preparation and distribution of the DEIS, consideration of the public and agency comments regarding the DEIS and the selection of the Alternative to be included in the FEIS. Beyond the FEIS, the remaining step is the Record of Decision (ROD). **Exhibit 2-8** illustrates the planning process under NEPA, showing how the line and grade and environmental studies progress together with public involvement.

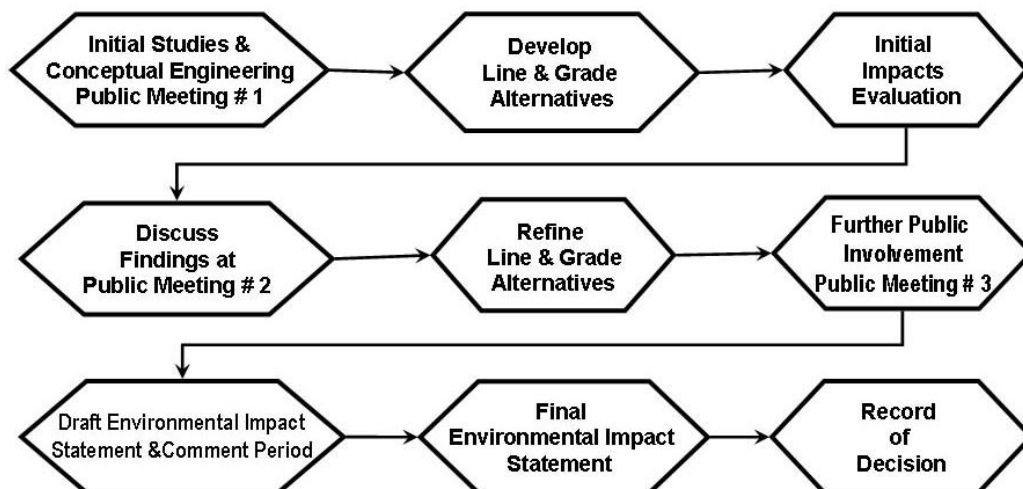
The key steps in the NEPA planning process are summarized below:

- Conceptual Engineering

- Agency and public scoping
- Development of line and grade Alternatives
- Initial evaluation of impacts
- Public presentation of Alternatives
- The Refinement of Alternatives
 - Consultation with Agencies, local officials, and other interested groups
 - Public presentation of refined Alternatives
- Selection of Alternatives for inclusion in the DEIS by DOTD and FHWA in consultation with the Agencies. A Preferred Alternative may be identified in the DEIS, but would not necessarily eliminate other Build Alternatives from being included in the document.
- Preparation and distribution of the DEIS and a Comment Period of at least 45 days including a Public Hearing.
- Consideration of the comments, and the preparation of responses, is an important step during which the project sponsors have the opportunity to revise the Alternatives in light of the concerns raised. At the conclusion of this step, a Proposed Action is selected for inclusion in the FEIS. This is usually, but not necessarily, a Build Alternative.
- The final phase is the Record of Decision. It is issued by FHWA to document that the project has successfully completed the NEPA process and to explain the environmental commitments made.

Exhibit 2-8

NEPA Planning Process



2.3.3 Alternatives to be Considered

FHWA advises that a full range of reasonable Alternatives must be considered for a project. In addition to Build Alternatives, Transportation Systems Management (TSM), Public Transit, and No-Build Alternatives should be considered.

2.3.3.1 Transportation Systems Management

The Transportation Systems Management (TSM) Alternative includes those activities which maximize the efficiency of the current system. Options such as fringe parking, ridesharing, high-occupancy vehicle lanes, and traffic signal timing optimization are considered. This limited construction Alternative is usually relevant for major projects proposed in urbanized areas with populations greater than 200,000. Most of the project study area population is below this threshold. Furthermore, the existing facility is at grade and, due to the threat of flooding, the TSM Alternative would not satisfy the need identified in Chapter 1 for improved hurricane evacuation. Therefore, the TSM Alternative was eliminated from further consideration.

2.3.3.2 Public Transit

The public transit Alternative includes those reasonable and feasible transit options such as bus systems and light rail. This Alternative is usually relevant for major projects proposed in urbanized areas with populations greater than 200,000. The public transit Alternative would not meet the Purpose and Need because:

- The study area population would not be dense enough to support a bus or rail public transit system, and
- Public transit serves only person trips, and would not support the freight movements needed to sustain the regional economy of southern Louisiana.

Therefore, the Public Transit Alternative was eliminated from further consideration.

2.3.3.3 No-Build

The No-Build Alternative is the projected future condition that would exist if the proposed project were not constructed, but all other programmed projects were constructed. The No-Build Alternative is considered in all NEPA Alternatives analyses because it provides a baseline condition for comparing the impacts of the Build Alternatives.

2.3.4 Design Criteria

The project roadways fall into several classifications based on the Purpose and Need. Mainline I-49 South is classified as a freeway, in accordance with LDOTD Design Procedures and Details (2002). High speeds and control of access are elements of its design. I-310, US 90, LA 3127 and other roadways in the project area vary in classification from freeway to arterial to collector depending on their functions.

The design criteria for each classification specify roadway elements such as design speed, lane width and shoulder width, degree of horizontal curvature (roadway bends to the left or right), maximum vertical grades (inclines), superelevation rates and superelevation transition lengths (rates and lengths of incline between at-grade and elevated roadway sections), horizontal and vertical clearances, and sight distances. These criteria typically influence the alignment and the required ROW of a project. Also, the criteria can vary for each classification from rural to urban areas. The US 90 corridor is rural from Raceland to LA 306, and it is urban from there to the Westbank Expressway.

Design criteria limit and define the range of alternatives in the same manner as do the environmental characteristics of the corridor. The general design criteria for the conceptual engineering line and grade study of proposed I-49 South are presented in **Appendix 2-B**. Additional design criteria can be obtained from the state's design standards or the American Association of State Highway and Transportation Officials (AASHTO) Book entitled *A Policy on Geometric Design of Highways and Streets* (2004) (the Green Book) and *LDOTD Roadway Design Procedures and Details* (2002).

The design criteria which most influenced the I-49 South alternatives were sight distance, 100-year storm frequency, 50-year storm frequency, vertical clearance and required ROW. Each is described in the following subsections.

2.3.4.1 Sight Distance

The ability for drivers to see ahead is of utmost importance for safe and efficient operation of a motor vehicle. Sight distance can be defined as the length of roadway ahead that is visible to the driver. Sight distances of sufficient length must be provided to enable drivers to control the operation of their vehicle and avoid striking an unexpected object in the traveled way.

Providing adequate sight distances directly influences roadway geometry. Roadway curves, signs, bridge and roadway barriers, walls and overpasses are several factors which must be considered when developing adequate sight distances. Sight distances also depend on design speeds (i.e. as design speeds increase, required sight distances increase). Adequate vertical curve lengths (incline distances), horizontal curve radii (curve sharpness) and shoulder widths must be provided to accommodate the required line of sight. For high speed roadways, such as I-49 South, providing adequate sight distances results in large horizontal curve radii (long, gradual curves), long vertical curves and wide shoulders. While providing adequate sight distances, these geometric elements limit the number of potential alignments which may be considered.

The three types of sight distances were considered in developing the I-49 South alternatives:

1. **Stopping Sight Distance:** The distance required for a vehicle to stop on any type of highway. Stopping Sight Distance was considered throughout the corridor for the mainline, ramps and frontage roads.
2. **Decision Sight Distance:** The distance needed for the driver to make decisions at information sources or hazards. Decision Sight Distance was considered at all interchange ramps.
3. **Intersection Sight Distance:** The distance provided when feasible at intersections to enhance the safety of the facility. Intersection Sight Distance was considered primarily at the intersections along the frontage roads.

2.3.4.2 100-year Storm Frequency

Storm frequency is another design criteria used in the design of the project. Storm frequency (also commonly referred to as the *recurrence interval* or *return period*) is the probability that a rainfall event of a certain magnitude will occur in any given year. The storm frequency is the average length of time expected to elapse between

rainfall events of equal or greater magnitude. It is a function of geographic location, rainfall duration and rainfall depth. Although storm frequency is expressed in years, it is actually based on a storm event's exceedance probability, which is the probability that a storm magnitude will be equaled or exceeded in any given year. The 100-year storm frequency is interpreted as a storm that has a 1 percent probability of being equaled or exceeded during any given year. A 100-year storm should not be mistaken for a storm that occurs every 100 years. Inundation associated with a 100-year storm frequency is referred to as the 100-year flood. The 100-year flood is a regulatory standard used by federal agencies and most states, to administer floodplain management programs.

Since the 2005 hurricane season, it has been determined that I-49 between Raceland and the Westbank Expressway should be constructed entirely as an elevated roadway. Elevating the roadway would provide clearance of the 100-year floodplain.

2.3.4.3 50-year Storm Frequency

A 50-year storm frequency is interpreted as a storm that has a 2-percent probability of being equaled or exceeded in any given year. The elevation of inundation associated with a 50-year storm frequency is referred to as the 50-year storm elevation.

The minimum vertical elevations of at-grade sections of US 90 and other new, realigned, or reconstructed roadways in the project should remain above the 50-year storm elevation according to state highway hydraulic standards. This translates to the edge of the left travel lane being equal to 5.0 feet msl. No minimum elevation is proposed for existing roadways that will remain in their current condition.

2.3.4.4 Vertical Clearance

The vertical profile of the proposed roadways is influenced by the minimum vertical clearance requirement for each of the following conditions:

- Crossing all roadways and the crests of levees, it is 16.5 feet.
- Crossing railroads it is 23 feet above top of rail, and
- As described in Section 5.5.4 Navigation, crossings of Section 10 waterways, including navigation studies of the requirements of vessels using the waterways, are determined during Preliminary Design.

In locations other than those described above, a minimum vertical clearance of 16.5 feet will be maintained above the surrounding grade at the time of construction.

2.3.4.5 Required ROW

For an elevated roadway, a distance of 25 feet on either side of the structure is typically required for construction and maintenance, but there are exceptions.

For at-grade roadways, the required ROW is determined by the width of the fill section needed to reach the minimum elevation as well as minimal width necessary to establish the required horizontal clear zone. The horizontal clear zone is defined as the area beyond the edge of the travel lane which must remain free from obstructions. The horizontal clear zone width varies depending on roadway classification, according to the DOTD Design Standards.

2.4 Conceptual Design

The conceptual design phase of the project was undertaken during the time when the project was being studied as two SIUs. Early during conceptual design of each SIU, alignments were suggested or recommended by public officials and members of the general public. While some of these satisfied the design criteria and were included within the Alternatives Analysis, many suggested alignments simply could not satisfy the design criteria for their roadway classification.

The first round of public information meetings was held on April 15 and 16, 2003, for SIU 1 and on April 22 and 29, 2003, for SIU 2. Also, a Town Hall meeting sponsored by three St. Charles Parish Councilmen was held in Paradis, LA, on May 6, 2003.

Following these meetings, and based largely on comments received, twenty-five Alternative conceptual alignments were developed for SIU 1 connecting the existing US 90 interchange at LA 1/LA 308 with I-310 shown in **Exhibit 2-9**. Similarly, twenty-four alternative conceptual alignments were developed for SIU 2 shown in **Exhibit 2-10**. These Alternatives connected I-310 with the existing completed portion of the Westbank Expressway. At this point in the project, the Alternatives in both SIUs were understood to terminate at I-310. Joining the two SIUs was not considered as a design criterion.

Exhibit 2-9
Initial SIU 1 Alternative Conceptual Alignments

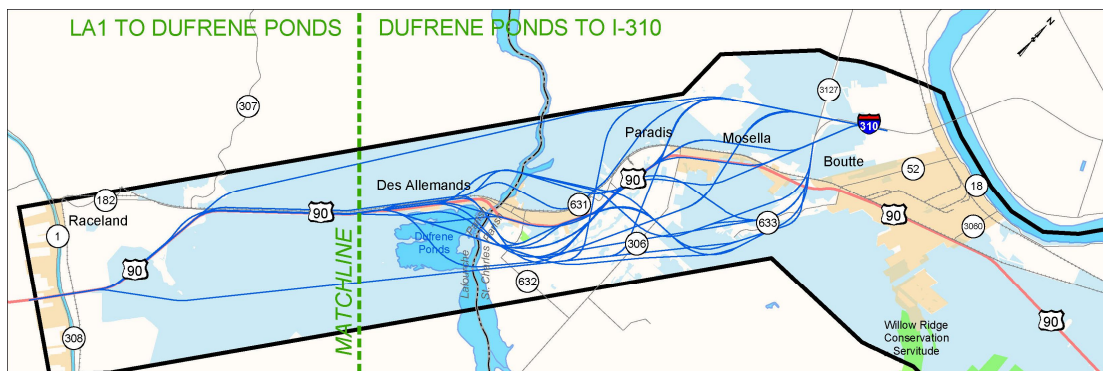
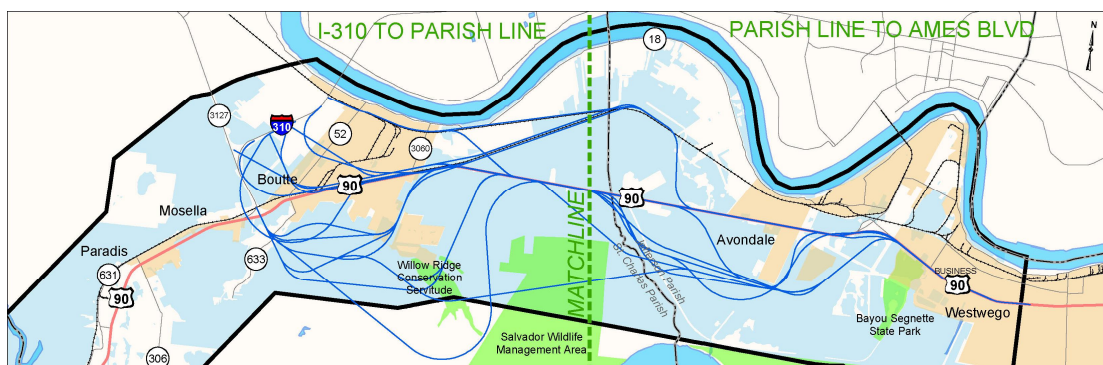


Exhibit 2-10
Initial SIU 2 Alternative Conceptual Alignments



Beginning with the northernmost in each SIU, and continuing to the south, these Alternatives were lettered A through Z, not including I. As conceptual design advanced in SIU 1, Alternatives were designated AA, BB, and so forth. SIU 2 did not exceed twenty-five alpha-designated Alternatives.

2.4.1 SIU 1 Concerns

An initial evaluation of potential impacts of the SIU 1 conceptual Alternative alignments on natural and built environmental data was undertaken based primarily on available published data sources, and by site visits and meetings with public officials. This initial evaluation determined that:

- Any new crossing of Bayou Des Allemands would need to be outside the existing US 90 right-of-way (ROW), and
- The existing US 90 alignment could be followed or paralleled to provide an interchange with LA 182 between Bayou Lafourche and the point at which the new crossing of Bayou Des Allemands would leave the existing US 90 ROW.

Alternatives to the north and south of US 90 that did not meet the second of these findings were eliminated because they acted as bypasses and provided no improvements to local traffic. Others were eliminated because they could not meet the design criteria for freeways without resulting in potential impacts.

2.4.2 SIU 2 Concerns

The initial evaluation of the SIU 2 conceptual alignment Alternatives identified more constrained conditions. In St. Charles Parish, south of existing US 90, there is contiguous urban development of 1,500 or more feet in width. Routes to the south were considered that would join I-310 at the existing US 90 interchange and rejoin US 90 to the east before reaching the Davis Pond Freshwater Diversion Canal. All but one of these southern Alternatives was eliminated because of conflict with the Davis Pond Freshwater Diversion Ponding Area, the Willowridge Conservation Servitude, and/or one of the proposed alignment Alternatives for the proposed hurricane protection levee.

Early in the project, the use of a joint ROW was considered for I-49 and the levee proposed by the Donaldsonville to the Gulf Hurricane Protection Project, but it was determined that the construction schedules and maintenance requirements of highways and levees vary to such an extent that this would not be reasonable.

In Jefferson Parish, the first concepts were designed to remain primarily on the existing US 90/US 90 Business ROW. Alternative alignments were considered only in the area between the Parish line and the interchange leading to the Huey P. Long Bridge. At the request of Jefferson Parish, however, an Alternative was considered on an alignment south of Westwego. This was eliminated because the existing Westbank Expressway ROW is available, the traffic demand would not be satisfied, and potential wetland impacts could not be avoided.

An evaluation of potential impacts from available natural and built environment inventories recognized that the SIU 2 study area is dominated by wetlands. This makes it difficult to meet the requirement of Section 404 of the Clean Water Act with any alignment that departs from the US 90 alignment. Section 404 requires that a

project be the least damaging, yet practicable Alternative relative to wetlands. Also, SIU 2 contains the following five areas that should be avoided to eliminate potential impacts:

- The Willowridge Conservation Servitude;
- The Ponding Area for the Davis Pond Freshwater Diversion Canal;
- The Salvador/Timken WMA;
- The buffer overlap area surrounding the Monsanto facility where public access is prohibited by the plant and industrial expansion is prohibited by St. Charles Parish; and
- The cluster of landfills on US 90 at the St. Charles/Jefferson Parish line.

In summary, it was clear early in the planning process that identifying the least damaging, yet practicable Alternative in each SIU would be challenging. The principal challenges would be associated with:

- Impacts to established communities resulting from using the design criteria for an interstate on the existing US 90 ROW to the maximum extent possible, and
- Potential impacts to wetlands and protected properties resulting from departure from the existing US 90 ROW.

The second round of Public Information Meetings was held on October 30, 2003, and November 4, 2003, for SIU 2 and on November the 6 and 11, 2003, for SIU 1.

At these meetings, SIU 1 was presented in two parts. LA 1 to Dufrene Ponds had one Alternative, and Dufrene Ponds to I-310 had six as shown in **Exhibit 2-11**. SIU 2 also was presented in two parts. St. Charles Parish had two Alternatives, and Jefferson Parish had three as shown in **Exhibit 2-12**. These Alternatives are described in **Appendix 2-A**.

2.5 Refinement of Alternatives

After the second round of public information meetings, the alternative refinement phase was initiated. The tasks included:

- Refining the alternatives presented to avoid and minimize identified impacts and in response to comments received;
- Developing additional Alternatives, as appropriate, to avoid and minimize impacts and in response to comments;
- Screening the Alternatives for consistency with the project Purpose and Need;
- Considering the potential impacts of the Alternatives presented in meetings in greater detail based on additional data, and documenting this in a draft Alternatives Analysis for each SIU; and
- Obtaining concurrence for the draft Alternatives Analysis from the signatories of the NEPA and 404/10 Concurrent Process Agreement.

Comments relative to the presented Alternatives received during the public information meetings and at a meeting with the Agencies on December 9, 2003, can be summarized as follows:

- Some portions of proposed Alternatives in each SIU crossed wetland areas, which should be avoided to the maximum extent possible;

- There was a lack of continuity of I-49 between SIU 1 and SIU 2, and a companion concern that eliminating an Alternative in one SIU solely because it did not join the other might not meet the test of independent utility;
- Alternatives that were preferred by the public were not always the least damaging to the natural environment; and
- Alternatives found to be less damaging to the natural environment were not generally preferred by the public because they were perceived to be disruptive to established neighborhoods.

Exhibit 2-11
SIU 1 Alternatives
Presented at the Second Round of Public Information Meetings

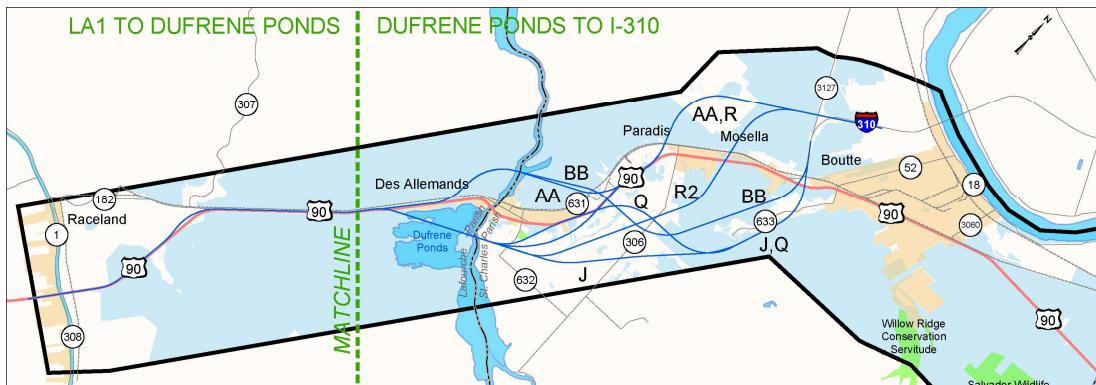
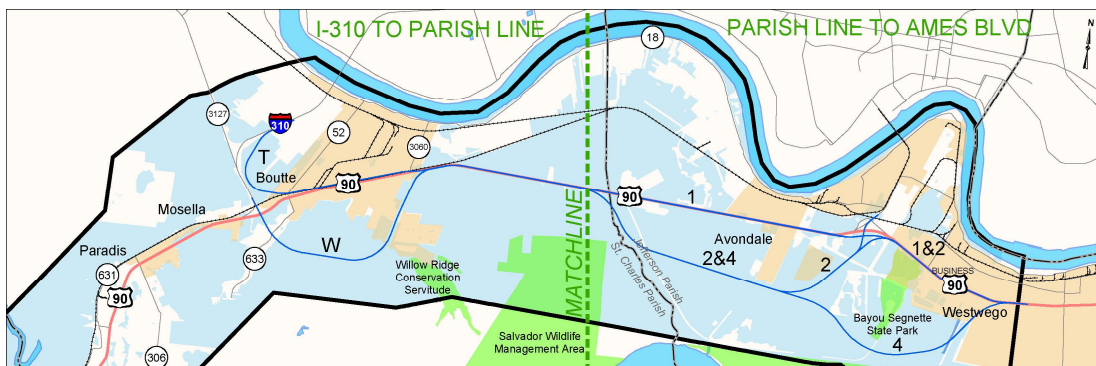


Exhibit 2-12
SIU 2 Alternatives
Presented at the Second Round of Public Information Meetings



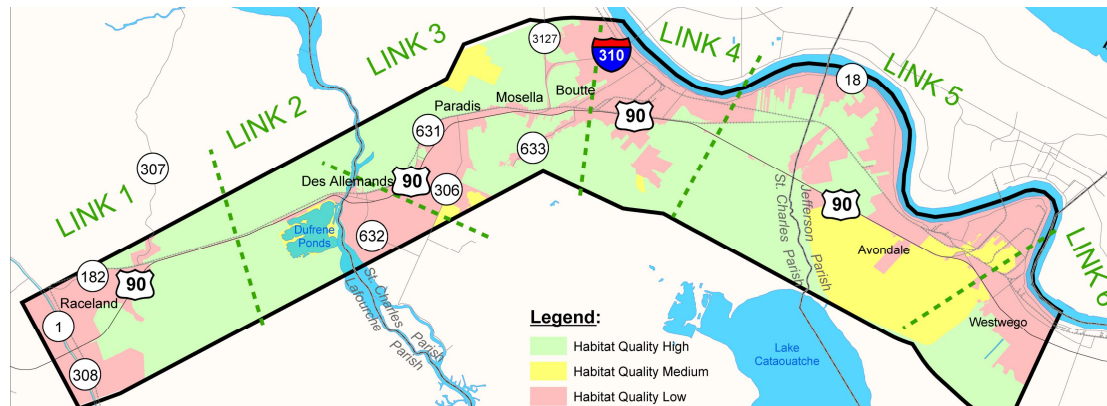
To respond to these comments, three steps were undertaken:

1. Additional Alternatives were considered for SIU 1 including alignments that followed the existing alignment of US 90, some of which previously had been eliminated due to community impact;
2. The seventeen potential alignments of the connections between the pairs of SIU 1 and SIU 2 Alternatives were developed and screened for compliance with the Purpose and Need and for potential environmental impacts; and
3. On January 6, 2004, the project team met with representatives of USFWS, LDWF, and LDNR who were experienced in habitat quality assessments. The meeting purpose was to identify areas of varying habitat quality within the

corridor. Pending the completion of field work, this information and the National Wetlands Inventory (NWI), were used to screen Alternatives relative to potential natural resource impacts.

Exhibit 2-13 presents the outcome of this meeting.

Exhibit 2-13
Habitat Quality in US 90 Corridor



2.5.1 Initial Definition of Links

In support of the foregoing tasks, and to simplify the comparison of Alternatives, the study area was divided into “Links.” Links are sections of the corridor that share common issues of concern related to environment, traffic, and roadway geometry. Link boundaries have been refined as described in Section 2.5.5, but initially three Links were defined in SIU 1:

- Link 1: Lafourche Parish from LA 308 to just west of Dufrene Ponds;
- Link 2: Lafourche and St. Charles Parishes from Link 1 to approximately LA 306; and
- Link 3: St. Charles Parish from Link 2 to I-310.

Also, three Links were defined in SIU 2:

- Link 4: St. Charles Parish from I-310 to just east of the Davis Pond Diversion Canal;
- Link 5: St. Charles and Jefferson Parishes from Link 4 to a point just east of the intersection of US 90 Business and Segnette Boulevard; and
- Link 6: From Link 5 to the end of the existing completed portion of the elevated Westbank Expressway (US 90 Business) at approximately Ames Boulevard in Marrero in Jefferson Parish.

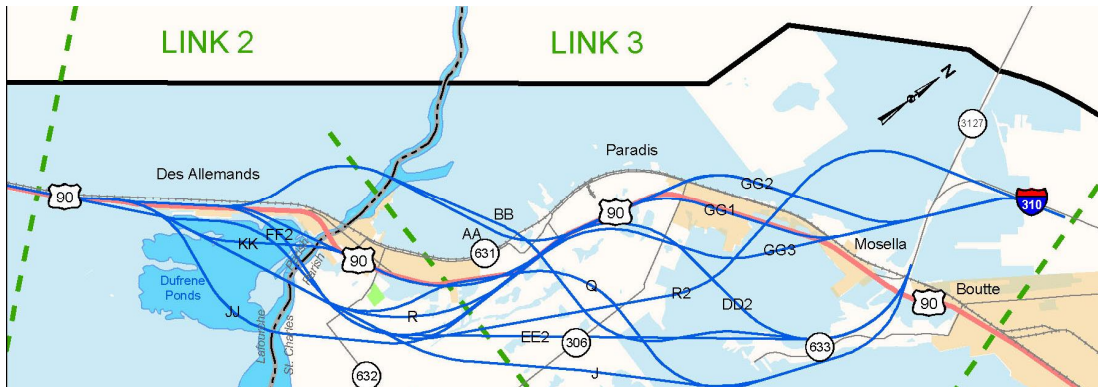
2.5.2 Agency Coordination

The new and refined SIU 1 Alternatives, shown in red on **Exhibit 2-14**, as well as the alignments of the connections between the SIUs were screened. Descriptions of these Alternatives can be found in **Appendix 2-A**.

The draft *Alternatives Analysis Report* was prepared in February 2004 and submitted for comment to the Agencies, especially those that are party to the 404/10 Concurrent Process, to seek their concurrence as a step in that process. The Report summarized

the findings of the environmental screening and facilitated the comparison of Alternatives. The draft *Alternatives Analysis Report* included a matrix of impacts.

Exhibit 2-14
Alternatives in Links 2 and 3 Screened in Draft Alternatives Analysis



The comparison included criteria that were established in the Purpose and Need; constructability considerations; potential visual and aesthetic issues; and the potential impacts to cultural resources, natural resources, and threatened and endangered species. For each of these criteria, which can only be expressed qualitatively, the Alternatives were defined as likely to impact (yes) or not likely to impact (no) resources or as likely to have some degree of potential impact (low, medium, or high).

Other criteria, which were expressed quantitatively, included engineering characteristics, such as length and total additional required ROW; areas of wetlands; acres of habitat by quality ranking; and land use; and numbers of residences or public facilities.

Although the second group of criteria was expressed quantitatively, the use of the entire matrix was qualitative. In their comments on the draft *Alternatives Analysis Report* (DMJM 2004), USEPA stated that the elimination of Alternatives which did not meet the Purpose and Need was acceptable. A purely qualitative use of the remaining criteria, however, raised questions of how the various criteria would be applied and of how statutory considerations would be weighed against non-statutory ones.

This concern expressed by USEPA was addressed by continued consultation with the Agencies, including those with statutory authority over the various aspects of the environment potentially affected by I-49. The goal of these deliberations was to identify alignments that were the least damaging, yet practicable Alternatives. Consequently, several Alternatives were discarded based on comments from the Agencies. Communications with local officials, community groups, and property owners took place regarding reasonable Alternatives. Their suggestions and concerns were also reviewed and used to refine the Alternatives.

On April 8, 2004, pursuant to the concurrent process agreement, DOTD and FHWA consulted with the USACE regarding the Alternatives that survived the screening

prior to selecting those to be presented during the third round of SIU 1 public information meetings planned for May 2004.

This consultation led to a joint field visit on April 29, 2004, of potentially sensitive environmental areas within the ROWs of the remaining SIU 1 Alternatives. The field visit yielded an important distinction between potential alignments north of the Burlington Northern Santa Fe (BNSF) railroad compared to those to the south. While both locations were found to contain wetlands and high quality habitat, those to the north had undisturbed hydrology, but those to the south had disturbed hydrology. This distinction assisted in the elimination of many of the remaining Alternatives in Link 3.

Also during April 2004, regarding the connection between SIU 1 and SIU 2, traffic analyses found that negligible numbers of trips were predicted for the lanes connecting I-49 westbound to I-310 northbound or I-310 southbound to I-49 eastbound. It appeared that if these connections were eliminated, an alignment could be developed that minimized potential impacts to wetlands and to minority and low income neighborhoods. Alternative AZ was developed in response to these traffic findings during May 2004, but it was not presented at the third public information meeting for SIU 1 as it was still under development. The presentation at the meetings did include other connections that paired the surviving SIU 1 Alternatives with the SIU 2 Alternatives.

Alternative AZ was advanced because it combined a possible reduction in potential wetland impacts with the avoidance of residential takings in a minority neighborhood. While the lanes providing the connections discussed above were eliminated from the first iteration of Alternative AZ, FHWA determined that the eliminated movements should be provided, but that the design speeds of the connections could be lower than 60 mph.

2.5.3 Public Official and Stakeholder Coordination

Concurrent with the Agency coordination discussed above, communications with public officials, community groups, and property owners took place during the refinement phase. The more consequential of these are as follows:

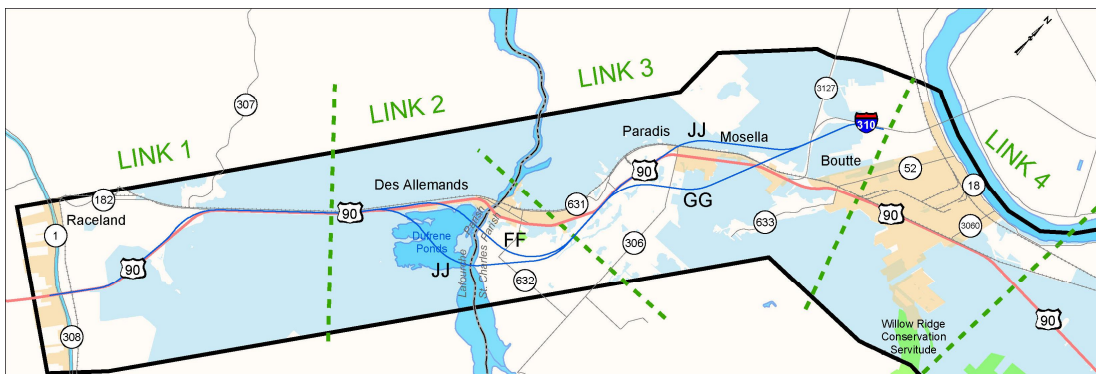
- Major landowners in the Raceland area joined with Lafourche Parish representatives in requesting frontage roads and realignments of LA 182 to improve access in the completed project. While I-49 in this area continued to be aligned on existing US 90 to the maximum extent possible, adjustments were made in the frontage roads and the LA 182 and LA 307 alignments as permitted by the design criteria.
- The St. Charles Parish Council adopted a resolution requesting that an Alternative other than T or W be developed. This led to the development of Alternative Z in SIU 2, which created additional connections to be studied for both SIUs.
- The St. Charles Economic Development Council asked that Alternative Y in SIU 2, eliminated earlier because it encircled the Willowdale Conservation Servitude and traveled north to US 90 through a portion of the Davis Pond Ponding Area without providing a Willowdale interchange, be reconsidered or that another Alternative be sought through Boutte and Luling.

- Contact was made with the minority residents of Boutte, especially those living north of the BNSF railroad, to discuss the potential takings in their neighborhood if Alternative T of SIU 2 were selected. A Town Hall Meeting was held in Boutte on March 18, 2004, and follow-up meetings were held with neighborhood residents. A list of community and town hall meetings for the project is provided in **Table 7-5**.

2.5.4 SIU 1 Third Round of Public Information Meetings

The third round of public information meetings for SIU 1 was held in Lafourche Parish on May 18, 2004, and in St. Charles Parish on the May 20, 2004. **Exhibit 2-15** shows the Alternatives presented during those meetings. The designations of these Alternatives varied slightly from those found in the *Draft Alternatives Analysis*. In Link 2, FF at the meetings had been FF2 in the draft *Alternatives Analysis*, and in Link 3, JJ had been GG2 in the draft *Alternatives Analysis*, and GG had been GG3. Descriptions of these Alternatives are found in **Appendix 2-A**.

Exhibit 2-15
SIU 1 Alternatives
Presented at the Third Round of Public Information Meetings



Although SIU 1 and SIU 2 were being studied separately, the SIU 1 alignments in Link 3 limited the SIU 2 alignments possible in Link 4. Therefore, once acceptable Alternatives were developed for Link 3 of SIU 1, progress could be made in resolving SIU 2 alignments in St. Charles Parish.

On June 16, 2004, DOTD and FHWA met with the Agencies to select SIU 1 Alternatives to include in the DEIS and SIU 2 Alternatives to present at the third round of public information meetings. Consensus was reached on a number of issues for each SIU:

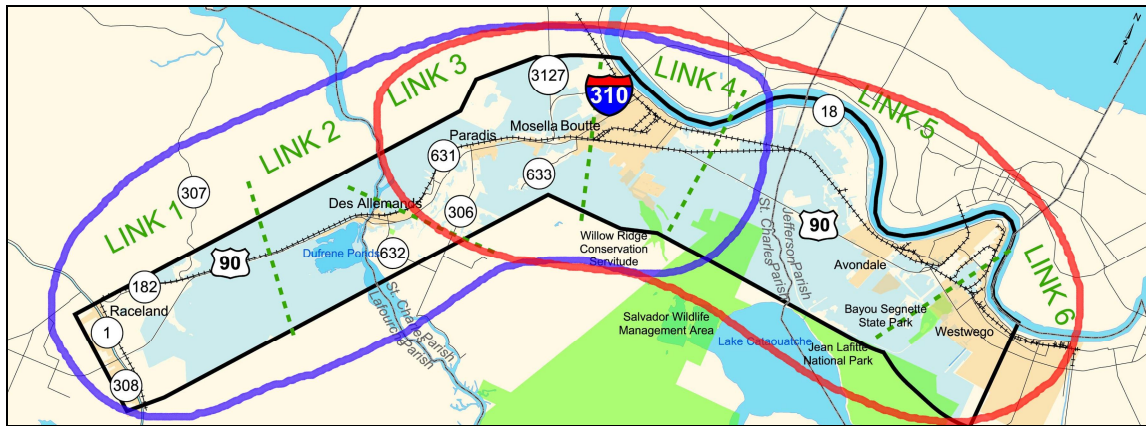
- Redefinition of the Links;
- Redefinition of the SIUs based on Links;
- The designation of each alignment Alternative would be tied to the Link designation;
- The Build Alternatives to include in the SIU 1 DEIS; and
- The Alternatives to present at the SIU 2 third round public information meetings planned for later in the summer.

2.5.5 Redefinition of Links

The following describes the Links as redefined at that meeting. The Links are defined in this way in the DEIS and in the DEIS for SIU 1. As illustrated on **Exhibit 2-16**, it was decided that Links 3 and 4 would be included in both SIUs. Finally it was determined that the individual Build Alternatives within each Link would be identified by the Link number and a sequential upper case letter.

- Link 1: LA 308 to just west of Dufrene Ponds
- Link 2: From Link 1 to about 2.3 miles west of Bayou Gauche Road (LA 306)
- Link 3: From Link 2 to just east of Paul Maillard Road (LA 52)
- Link 4: From Link 3 to just east of the Davis Pond Diversion Canal;
- Link 5: From Link 4 to a point just east of Segnette Boulevard; and
- Link 6: From Link 5 to the existing completed portion of the elevated Westbank Expressway (US 90 Business) at approximately Ames Boulevard in Marrero in Jefferson Parish.

Exhibit 2-16
Redefinition of Links & SIU



2.5.6 SIU 2 Third Round of Public Information Meetings

As Links 3 and 4 were in both SIUs, it was determined that the Alternatives in those Links would be substantially identical in each SIU. The development of the Alternatives in Links 3 and 4 for the third round of public meetings for SIU 2 also represented the development of the DEIS Alternatives in those Links for both SIUs. The Alternatives presented at these meetings, held on August 17, 2004, in St. Charles Parish and on August 19, 2004, in Jefferson Parish, are shown on **Exhibit 2-17**.

2.5.6.1 Link 3 Alternatives

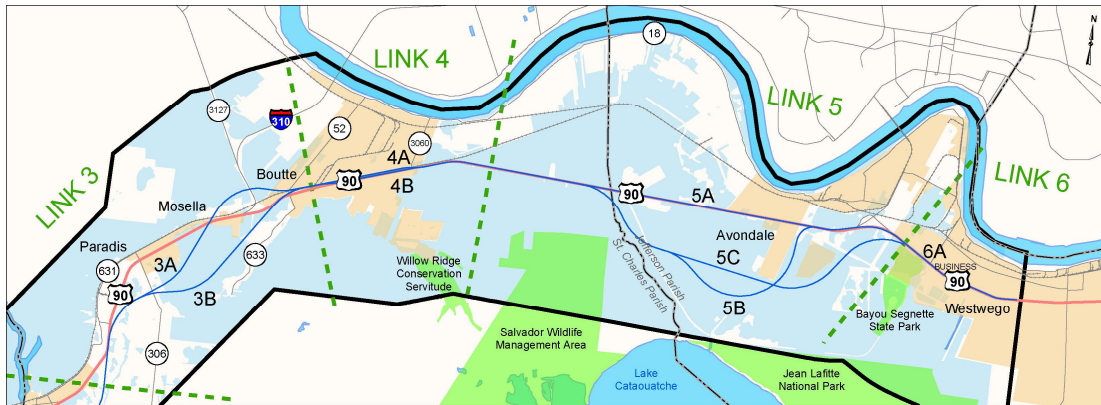
Link 3 initially ended at I-310. Adjustments were required to join it to Link 4 east of LA 3127 based on the redefined Links.

Alternative JJ in Link 3, north of the BNSF railroad, was eliminated based on the findings of the April 29 field visit.

The connection of Alternative GG3 in Link 3 with Alternative T in SIU 2 had been defined and presented at the third public information meeting for SIU 1. This connection, notwithstanding the associated potential impacts to minority

communities, provides a route through Links 3 and 4 that is able to meet design criteria and that was reasonably acceptable to many individuals who commented at the SIU 1 meeting. For these reasons it was selected as an Alternative and redesignated Alternative 3A in Link 3.

Exhibit 2-17
SIU 2 Alternatives
Presented at the Third Round of Public Information Meetings



Alternative AZ that had been developed based on the traffic findings utilized the route of Alternative GG3 in Link 3 west of I-310. A major advantage was that it avoided minority neighborhoods and, based on the roadway being on a single elevated structure, as then proposed, minimized natural environmental impacts relative to all other alignments then being considered. It did, however, segment the wetland area along the Sunset Drainage District Levee south of Mosella.

With the understanding that Alternative AZ would be adjusted to reduce wetland segmentation, and that the Agencies would have the opportunity to review the adjustment prior to completion of fieldwork and documentation, it was redesignated Alternative 3B and selected as an Alternative for both the third public information meeting for SIU 2 and for the DEIS for SIU 1. For additional background, see **Appendix 2-A**.

2.5.6.2 Link 4 Alternatives

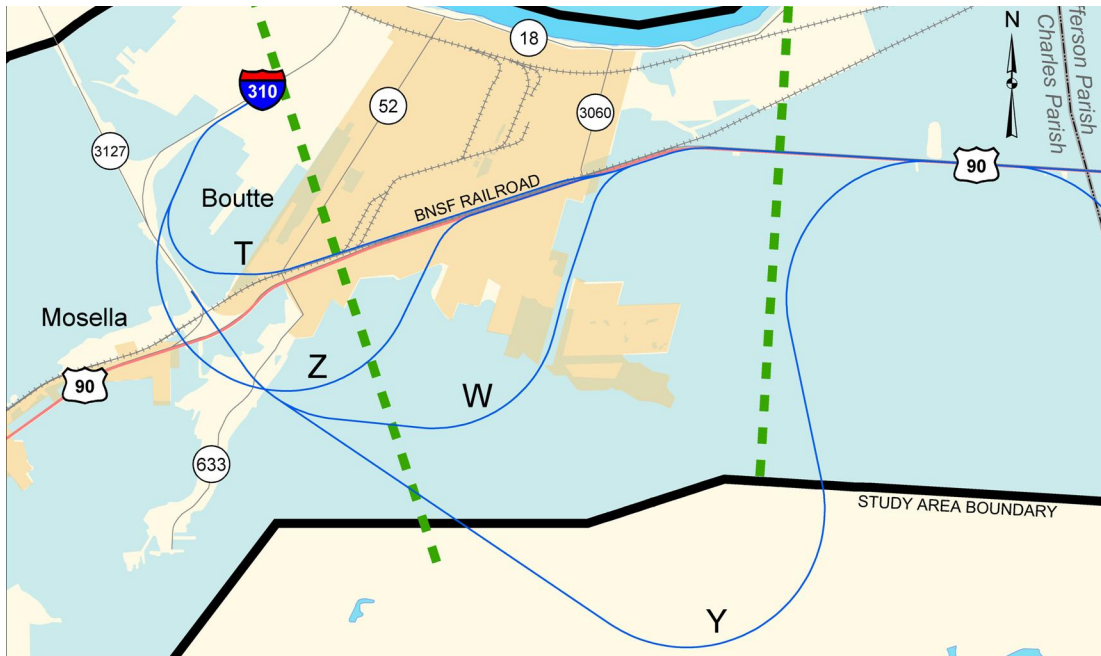
In Link 4, many SIU 2 Alternatives had been eliminated because their routes crossed the Monsanto Company's Luling Plant property within the 1,500 foot buffer around the production facilities. Remaining Alternatives were adjacent to, within, or south of the US 90 ROW. Five Alternatives that met these descriptions were presented to the public and/or the Agencies prior to the June 16, 2004, meeting. The following summarizes their alignments through Link 4 and the public response. **Exhibit 2-18** illustrates Alternatives T, W, Y, and Z. Alternatives U and 4B are illustrated on **Exhibits 2-19 and 2-20** respectively.

- Alternative T was aligned immediately north of the BNSF railroad as far east as Barton Avenue at which point it would cross into the US 90 ROW and continue to the end of the Link. Alternative T was presented at the second round of public information meetings. It has always had support because it is largely in areas not generally accessible to the public. It would result in relocations in a minority and

- low income neighborhood, however, and it would require infrastructure relocations on the Monsanto property. The portion in Link 3 became part of Alternative 3A as discussed above, and the portion in Link 4 has evolved into Alternative 4A.
- Alternative U was routed south of the developed areas of Boutte and Luling through wetlands. It originated at the intersection of US 90 and LA 3127, and proceeded eastward. When first considered, Alternative U was eliminated without being shown to the public because the potential for wetland impacts was high. Alternative U was reconsidered at the request of the St. Charles Parish Council as discussed in 2.5.7.
 - Alternative W, similar to U, originated at the intersection of US 90 and LA 3127 and was routed south, but it did not continue east toward Jefferson Parish. Rather, it turned north and joined US 90 through the 600-foot wide wooded area between Lakewood subdivision on the west and Willowdale and Willowridge subdivisions on the east. Alternative W was eliminated because it would not be the least damaging, yet practicable alternative compared to Alternative T, and because it met a high level of community opposition.
 - Alternative Y, like the original Alternative U, was eliminated without public discussion. Similar to U and W, Alternative Y originated at the intersection of US 90 and LA 3127 and proceeded south. Unlike W, it did not turn north between the subdivisions, but ran farther south to encircle the Willowridge Conservation Servitude, which is southeast of the subdivision. Alternative Y then turned north between the servitude and the Salvador/Timken Wildlife Management Area to reach US 90. Alternative Y was revisited at the request of the St. Charles Business Association Committee. However, Alternative Y was determined to not be the least damaging, yet practicable Alternative.
 - Alternative Z was developed after the second round of public information meetings in response to the St. Charles Parish Council Resolution requesting an Alternative to Alternative T that was not Alternative W. Alternative Z originated on the alignment of I-310. It turned southwesterly to the south of the I-310 / LA 3127 interchange, and curved approximately 180 degrees across LA 3127, US 90 in Mosella, and Magnolia Ridge Road (LA 633). It continued until reaching the extension of a tangent parallel to Coronado Drive, which it followed until reaching US 90. It then turned eastward and ran parallel to US 90 on twin structures on either side of existing US 90. Alternative Z was presented to both the St. Charles Business Association and public officials. Both felt it only transferred impacts from one neighborhood to another. Alternative Z also was not the least damaging when compared to Alternative T and was thought to have unacceptable impacts on existing businesses along US 90.
 - Alternative 4B was developed within the US 90 corridor by expanding the ROW on the south side of US 90 already owned, in part, by DOTD. Similar to the adjustment to Alternative 3B, this new Alternative was reviewed, and agreed to, by the Agencies prior to inclusion in the DEIS and the SIU 2 third public information meeting. Alternative 4B would cross the railroad from north to south at the eastern end of the commercial development on the north side of US 90. Pipelines also cross the railroad and US 90 here from north to south. Alternative

4B would then become an at-grade roadway and proceed east within the existing US 90 ROW. US 90 would be reconstructed to the south within the expanded ROW. This section would proceed eastward to the Willowdale Boulevard interchange.

Exhibit 2-18
Link 4 Alternatives T, W, Y, and Z



2.5.6.3 Link 5 Alternatives

Like the original Alternative 1, Alternative 5A would follow existing US 90 to the beginning of US 90 Business and then follow that roadway to the end of Link 5 between Nine Mile Point Road and Segnette Boulevard.

Alternative 5C, initially known as Alternative 2, would turn south of US 90 as it enters Jefferson Parish and cross the vacant area within the Cataouatche Levee before returning to US 90 and an interchange with US 90 leading to the Huey P. Long Bridge and with US 90 Business leading to the Westbank Expressway. 5C would be aligned between the Tournament Players Club (TCP) and Bayou Segnette State Park.

Alternative 5B was developed in response to concerns regarding the impact of Alternative 2 on planned development in Jefferson Parish. Like 5C, it would turn south, but on its return toward US 90, it would be aligned between the TPC and the developed area of Avondale south of US 90.

All three of these Alternatives were presented at the third public information meeting for SIU 2.

2.5.6.4 Link 6 Alternative

Alternative 6A is the section of Alternative 1 that would follow existing US 90 Business from the beginning of Link 6 through Westwego and Marrero to Ames Boulevard.

The third round of public information meetings for SIU 2 resulted in a request by the St. Charles Parish Council for reconsideration of Alternative U. In Jefferson Parish, there was no consensus in favor of an Alternative, but Alternative 5C was clearly the least favored. Prior to determining which Alternatives would be included in the DEIS for SIU 2, Alternative U was reconsidered in detail.

2.5.7 Alternative U

After the third round of public meetings, the St. Charles Parish Council passed a resolution at their meeting on September 7, 2004, in support of an alignment that would bypass the Boutte business district and loop around the Willowdale and Willowridge subdivisions to the south.

This Alternative is referred to as Alternative U, named for an Alternative with a similar route that was considered in the project's early stages. The route of this Alternative also included the addition of an interchange at LA 306 requested by the Council. **Table 2-1** shows that the two alignments using Alternative U in Links 3, 4, and 5 have a higher potential impact on the natural environment than the Alternatives proposed as Build Alternatives in the Review DEIS for SIU 2. The higher potential wetland impact is based on total wetland acres in the National Wetland Inventory (NWI) and the fact that Alternative U would traverse the Willow Ridge Conservation Servitude, the Salvador/Timken WMA, and the Davis Pond Freshwater Diversion Project. These areas were identified during conceptual alternative alignment development as environmentally sensitive. Moreover, these lands are afforded special status and protection. A Federal Court Order would be required to obtain ROW within the Willowdale Conservation Servitude; the Davis Pond Freshwater Diversion Project is a costly federal wetland reclamation project that cannot be altered without possibly damaging its function; and the Salvador/Timken WMA is a resource that may be protected by Section 4(f) of the Department of Transportation Act.

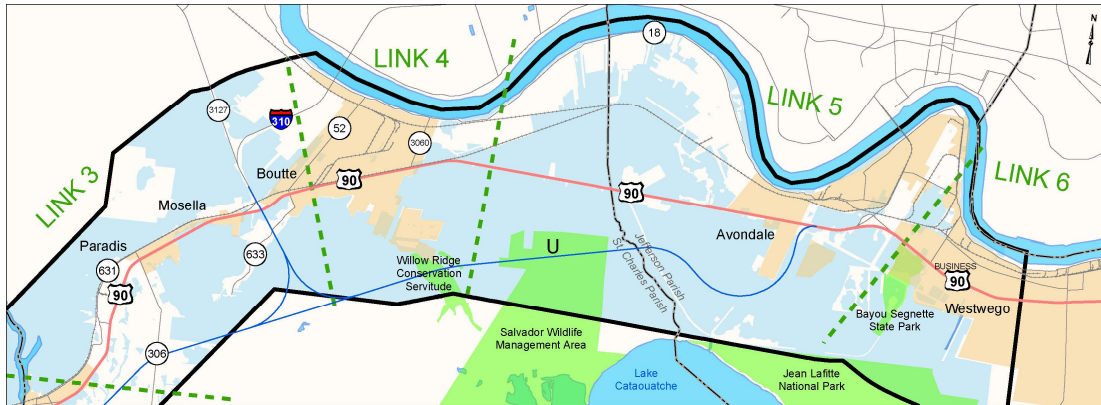
Table 2-1
Comparison of Potential Natural Environment Impacts of
Alternatives U/5B and U/5C with Alternatives 3A/4B/5C and 3B/4A/5A

Potential Impact	U/5B	U/5C	3A/4B/5C	3B/4A/5A
Total Additional Right-of-Way (acres)	1,147	1,180	798	497
High Quality Habitat (acres)	813	813	359	262
Potential Wetlands (acres) NWI ¹ not Field Verified	984	1,035	603	279
% of Total Additional Right-of-Way	86%	88%	76%	56%
NOTE: The quantities in this table describe areas to be taken for additional ROW. No existing ROW is included.				
¹ NWI - National Wetland Inventory.				

DOTD presented Alternative U as a candidate Build Alternative in an Agency coordination meeting held on October 14, 2004, prior to making a decision on which Alternatives to include in the DEIS for SIU 2. The advice received at that meeting was that Alternative U could be included if DOTD and FHWA determine that Alternative U could be demonstrated to be the least damaging, yet practicable Alternative in accordance with Section 404 of the Clean Water Act. As there are

other less damaging Alternatives proposed, Alternative U was eliminated from further consideration. As illustrated on **Exhibit 2-19**, Alternative U would follow an alignment in Links 3 and 4 that connects directly to Alternative 5B. It also could connect to 5C.

Exhibit 2-19
Alternative U

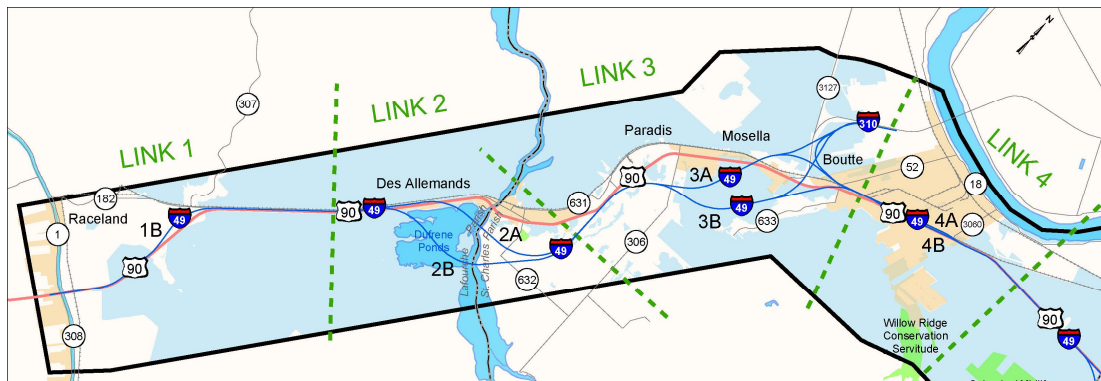


2.6 Selection of Alternatives for SIU DEIS's

2.6.1 SIU 1 DEIS

At a meeting on June 16, 2004, as discussed earlier, it was determined that the SIU 1 DEIS would include the Build Alternatives shown on **Exhibit 2-20**. Descriptions more detailed than those found below are included in **Appendix 2-A**.

Exhibit 2-20
Build Alternatives in the DEIS for SIU 1



2.6.1.1 Link 1 Alternative

In Link 1, only one mainline alignment was presented in the SIU 1 DEIS. Alternative 1A would remain on the existing US 90 alignment to the maximum extent possible, but optional interchanges and frontage road configurations were presented and discussed. The combination of interchange options presented at the third round of public information meetings was selected. These included the elevated U-turn to serve LA 308 traffic and the LA 182 interchange to the north. Existing eastbound US

90 would serve as a two-way frontage road as far west as possible, but it would not connect with LA 308.

Alternative 1A would be at-grade from the base of the Bayou Lafourche Bridge to the LA 182 interchange. As an at-grade Alternative, 1A would not respond to the post-Hurricane Katrina goal of providing an elevated roadway. An additional drawback of 1A is that its on-ROW alignment would preclude the ability of the Parish to construct the desired US 90 extension to LA 308.

2.6.1.2 Link 2 Alternatives

The two Alternatives selected for the SIU 1 DEIS in Link 2 were those presented at the third round of public information meetings, Alternatives FF and JJ, which are more fully described in **Appendix 2-A**. These Alternatives were redesignated Alternative 2A and 2B, respectively.

The major differences between these alignments are:

- The location of the Bayou Des Allemands is crossing, and
- The differences in measurable and perceived impacts.
- Alternative 2A, unlike Alternative 2B, would result in :
 - Relocations in developed areas of Lafourche Parish,
 - Noise in developed areas of Lafourche Parish, and
 - Impacts to navigation as a consequence of crossing multiple public and private navigation channels.
 - Alternative 2A also disturbs a protected species in St. Charles Parish. This concern is minimized by the alignment of Alternative 2B.
- Alternative 2B would result in what some residents perceive as a visual impact.

2.6.1.3 Link 3 Alternatives

As discussed in 2.5.6.1, Alternatives 3A and 3B were selected.

2.6.1.4 Link 4 Alternatives

As discussed in 2.5.6.2, Alternatives 4A and 4B were selected.

2.6.1.5 Preferred Alternative in DEIS for SIU 1

Pursuant to the NEPA and 404/10 Concurrent Process Agreement, once a decision was made to identify a Preferred Alternative, DOTD and FHWA consulted with the Agencies. The Agencies concurred on a Preferred Alternative for SIU 1 as described below. The Preferred Alternative was one of the eight possible combinations of the Build Alternatives as shown in **Exhibit 2-21**.

The Alternative Alignments by Link that comprise the SIU 1 Preferred Alternative included:

- **Alternative 1A:** This was the only Build Alternative in Link 1 as discussed in 2.6.1.1.
- **Alternative 2B:** This was included in the Preferred Alternative because of the benefits described in 2.6.1.2 relative to Alternative 2A.
- **Alternative 3A:** This was proposed to be included in the Preferred Alternative because it would have:
 - A substantially lower estimated construction cost than 3B, and

Exhibit 2-21
SIU 1 Preferred Alternative



- A lower number of total relocations although all residential relocations would be minority residents.

The Agencies initially expressed concern that 3A, while more practicable, was not the least damaging based on the wetland information presented. It was determined that 3A would be acceptable as the Preferred Alternative if its potential impact to wetlands would be equal to, or less than, that of Alternative 3B. Following this discussion, geometric revisions, developed in response to a concurrent design review, resulted in less wetland impact under Alternative 3A than that under Alternative 3B.

- **Alternative 4A:** Alternative 4A was proposed to the Agencies as the Preferred Alternative because, relative to Alternative 4B, it would have:
 - No construction period impacts on US 90 businesses, and
 - No relocation of active commercial or institutional sites as then aligned.

The Agencies expressed concern that elevating the frontage roads at the Willowdale Boulevard interchange in either Alternative would fix the potential alignment of relocated LA 3060, a separate project for which there has been no NEPA process undertaken to select the least damaging, yet practicable alignment. Therefore, Alternative 4A was revised to eliminate this potential connection, pending selection of an alignment for LA 3060, by placing the frontage roads at grade and I-49 on an elevated structure.

2.6.2 SIU 2 DEIS

Based on comments received from the general public, local officials, and the Agencies, it was determined at a meeting with the Agencies that the SIU 2 DEIS (Links 3 through 6) would include those shown on **Exhibit 2-22**. Descriptions more detailed than those found below are included in **Appendix 2-A**.

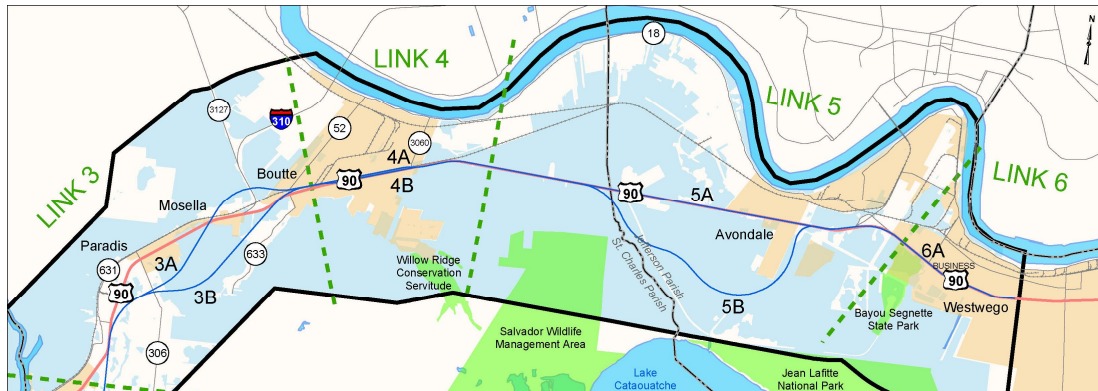
2.6.2.1 Link 3 Alternatives

Alternatives 3A and 3B were selected as in SIU 1.

2.6.2.2 Link 4 Alternatives

Alternatives 4A and 4B were selected again as in SIU 1.

Exhibit 2-22 Build Alternatives in the Preliminary DEIS for SIU 2



2.6.2.3 Link 5 Alternatives

Alternatives 5A and 5B, discussed in 2.5.6.3, were included in the SIU 2 DEIS.

2.6.2.4 Link 6 Alternative

Alternative 6A, discussed in 2.5.6.4, was selected for Link 6, from the beginning of US 90 Business through Westwego and Marrero to Ames Boulevard.

2.6.2.5 Preferred Alternative in Preliminary Review DEIS for SIU 2

Following the third public information meeting for SIU 2 and reconsideration of Alternative U, the Preferred Alternative for SIU 2, was determined to be as follows:

- **Alternative 3A:** This was selected for the same reasons as in SIU 1.
- **Alternative 4A:** This was selected for the same reasons as in SIU 1.
- **Alternative 6A:** This was the only alternative in Link 6.

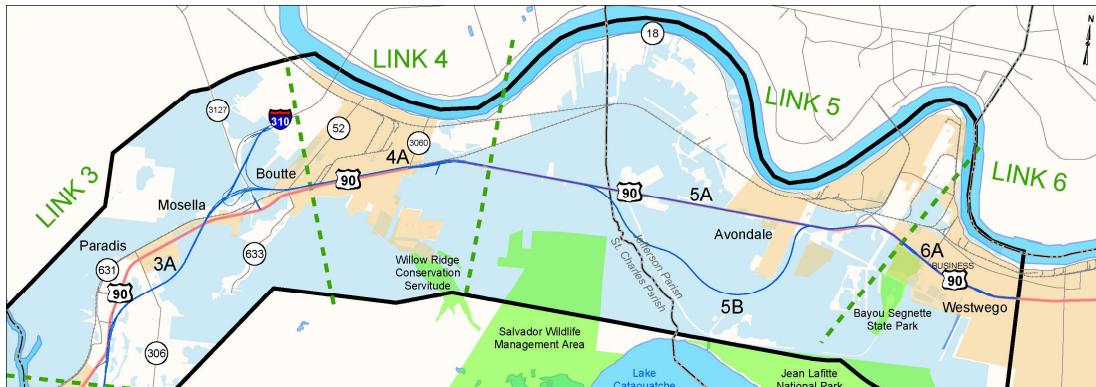
In Link 5, DOTD and FHWA did not select a Preferred Alternative as there was considerable uncertainty regarding the preference in Jefferson Parish. It was decided to advance both 5A and 5B without expressing a preference to facilitate the local debate prior to making a selection. The Agencies concurred with the Alternatives in Links 3, 4, and 6, but they expressed a clear preference for 5A over 5B. The Preferred Alternative for Links 3, 4, and 6 in SIU 2 with no preference in Link 5 is shown in **Exhibit 2-23**.

2.7 Comments and Responses to SIU 1 DEIS

The effects of Hurricane Katrina prompted an extension of the SIU 1 Comment Period from September 30 to December 31, 2005, and the rescheduling of the SIU 1 Public Hearing. The comments received on the DEIS for SIU 1 from Agencies and the public during the Comment Period and at the Public Hearing and the responses are found in **Appendix 7-D** of this FEIS.

Of the comments received, only one resulted in a change to the proposed project. This comment was issued by the USEPA. The letter containing the comment is found in **Appendix 7-D**, but the comment is copied below for ease of reference.

Exhibit 2-23 SIU 2 Preferred Alternative



“Chapter 1 – Purpose and Need for the Proposed Action

This chapter adequately describes the overall concept for the I-49 project, but does not specifically discuss the independent utility of SIU 1 beyond the level of service analysis. More attention should be given to describing the independent utility of this particular segment of the I-49 project. Independent utility must be adequately demonstrated to ensure that the NEPA process for this project has not been inappropriately segmented or conducted in a piecemeal fashion.”

After consideration of this comment, it was determined by DOTD and FHWA that the appropriate response would be to unify the project into a single EIS. A Notice of Intent, which can be found in **Appendix 7-A**, was issued in the *Federal Register* on March 3, 2006, to announce this change in the proposed project after consultation with, and concurrence by, the Agencies.

2.8 Status of SIU 2 DEIS

A Second Review Draft of the DEIS for SIU 2 was under review by DOTD and FHWA in July 2005. As a component of that review, it was determined that certain aspects of the conceptual engineering required further refinement.

The publication of the DEIS for SIU 2 was delayed pending the completion of this engineering refinement. Work on this task was underway on August 29, 2005, when Hurricane Katrina struck southeast Louisiana. As a result, there was an interruption in the work. Subsequently, the DOTD and FHWA’s consideration of the USEPA comment letter on the SIU 1 DEIS (described in Section 2.7) tabled completion of the SIU 2 DEIS. Ultimately, the DOTD and FHWA’s decision to unify the NEPA process for I-49 South means that the DEIS for SIU 2 will not be completed or distributed. The I-49 South DEIS made available on February 16, 2007, addressed the entire project from Raceland to the Westbank Expressway including Links 1 through 6. It replaced the DEIS for SIU 1 in Links 1 through 4 and served in place of the DEIS for SIU 2 in Links 5 and 6.

2.9 Definition of Unified Project

In addition to eliminating the SIUs as separate subjects of analysis, other features characterize the unified project. Each is described below.

2.9.1 Response to Threat of Catastrophic Flooding

In consideration of the heightened awareness of the threat of catastrophic flooding, both during evacuation prior to a storm and during rescue and recovery after a storm, it was determined that the mainline of I-49 should be elevated throughout the project.

Elevating the entire mainline eliminated, or required the redesign of, Alternatives in several Links as follows:

- Alternative 1A, as described in the Preferred Alternative for SIU 1, included an at-grade section of approximately 2 miles between the bridge crossing Bayou Lafourche, LA 1, LA 308, and the Louisiana Delta Railroad and the proposed elevated section beginning at the proposed interchange with LA 182. As there was only one Build Alternative in this Link, it was determined that the section between LA 1 and LA 182 would be redesigned to assure an elevated mainline. The resulting Selected Alternative, identified as Alternative 1B, is described in 2.1.1 and was presented as the Preferred Alternative at the Public Information Meeting on November 16, 2006, and at the Public Hearings on March 22, 27, and 29, 2007.
- Alternative 4B, as described in both the DEIS for SIU 1 and the Review DEIS for SIU 2, included an at-grade section of approximately 2.4 miles between the crossing of the BNSF Railroad in Boutte and the proposed Willowdale interchange. As 4A was the Preferred Alternative for both SIUs, Alternative 4B was eliminated from further consideration in the combined DEIS.
- Alternative 5B, as presented at the third round of public information meetings and as described in the Review DEIS for SIU 2, has an at-grade section in Avondale as the alignment curves from its route between Avondale and the TPC eastward to parallel US 90. Although no Preferred Alternative had previously been selected for Link 5, it was determined that Alternative 5B would be eliminated because of the at-grade section. This section cannot be elevated because the stopping sight distance on an elevated roadway would not permit the degree of curvature required. Alternative 5A was selected as the Preferred Alternative, and 5B was eliminated from further consideration in the combined DEIS. Alternative 5A is described in Section 2.1.5 and was presented as the Preferred Alternative at the Public Information Meeting on November 16, 2006, and at the Public Hearings on March 22, 27, and 29, 2007.
- Alternative 6A, as presented at the third round of public information meetings and as described in the Review DEIS for SIU 2, began in the east at the base of the existing elevated Westbank Expressway as it reaches grade in the center of the ROW. From there it proceeded approximately 842 feet to the west before beginning an elevated profile. The exit and entrance ramp locations that resulted from this configuration closed the crossing of the ROW at Central Avenue and eliminated access to the frontage road from Avenue C, Avenue D, West Drive, and Garden Road. As it had been determined that the roadway should remain elevated throughout, a new Alternative 6B was prepared that is discussed in Section 2.1.6. The only closing that results from 6B is the crossing of the ROW at Jung

Boulevard. It was presented as the Preferred Alternative at the Public Information Meeting on November 16, 2006, and at the Public Hearings on March 22, 27, and 29, 2007.

2.9.2 Implementation Planning

Chapter 8 of this FEIS presents a plan for the phased implementation of the project. The plan divides the project into 15 segments that represent increments that can be constructed and provide a transportation improvements.

These segments are then prioritized to fulfill the traffic demand and safety improvements over time as these are currently projected to occur.

For any single segment to become operational, a series of steps must be accomplished. The plan schedules each of these in relation to the segment priority. These steps include:

- Preliminary Design, to define to a greater degree that in Conceptual Design, the actual additional required ROW;
- Acquisition of the ROW through either purchase or donation of either the land or an easement;
- Final Design; and
- Construction.

Preliminary Design is scheduled in the plan to provide the information needed for the phased acquisition of ROW. It is important to note that the acquisition phases do not strictly match the priority of the segments, because of the following circumstances:

- Existing patterns of land ownership;
- Need to acquire some ROW as soon as possible so that it does not become developed; and/or
- The need of the ROW for a Segment with an early priority for construction.

Preliminary Design, therefore, would be carried out for the segments that must be defined to acquire the ROW in the sequence of the phases of acquisition established by these circumstances. Provided that the ROW is acquired timely, the Final Design is scheduled to be ready when needed to begin construction in the established priority.

Estimates of cost for each step are presented in Year of Expenditure (YOE) dollars.

2.9.3 Reconsideration of Cumulative Effects

The Cumulative and Indirect Effects discussion has been revised from those previously contained in the DEIS for SIU 1 and the Review DEIS for SIU 2 in accord with the Council on Environmental Quality guidance issued in June 2005.

2.9.4 A Single Build Alternative

The elimination or redesign of Alternatives in Links 1, 4, 5 and 6, discussed in 2.9.1, results in there being multiple Build Alternatives only in Links 2 and 3. As there is a clear choice of a Preferred Alternative in each of these Links, DOTD and FHWA determined that the combined DEIS would include only a single Build Alternative, which also was the Preferred Alternative, and the No-Build Alternative.

2.10 Alternatives Analysis Documentation

A document entitled *Draft Alternatives Analysis for SIU 1* was prepared to summarize the findings of the environmental screening in a manner that would facilitate the use of the findings in comparing the Alternatives. The document was also submitted to the Agencies for comments. Concurrence from the Agencies that are party to the 404/10 Concurrent Process were specifically sought as a step in that process.

The *Draft Alternatives Analysis for SIU 1* described the Alternatives identified to date and included tables that summarized and compared the potential impacts of each Alternative by Link by presenting both qualitative and quantitative criteria. The tables include the technical information used at meetings with the Agencies. The tables that compared the impacts among alternatives in SIU 1 are found in **Appendix 2-C**. The complete *Draft Alternatives Analysis for SIU 1* is found in **Appendix 2-D** on the enclosed CD. In response to a comment received regarding the unified DEIS, the table comparing SIU 2 alternatives also is found in **Appendix 2-C**.

The qualitative criteria included those that were established as the Purpose and Need, constructability considerations, potential visual and aesthetic issues, and the potential for impacts to cultural resources, natural resources, and threatened and endangered species. For each of these criteria, the Alternatives were identified as likely to impact (yes) or not likely to impact (no) resources or as likely to have some degree of potential impact (low, medium, or high).


Quantitative criteria were presented as the number of potentially impacted areas or units within the additional required ROW. These included engineering characteristics such as length and total additional required ROW, areas of wetlands, habitat by quality ranking, floodplains, the number of hazardous waste sites, and land use (including the numbers of residences or public facilities).

The *Draft Alternatives Analysis for SIU 1* also contained a discussion by Link that identified those conditions that provided a basis for discriminating among the Alternatives.

The procedures for the use of these criteria were intended to be qualitative. In their comments on the *Pre-Draft Alternatives Analysis for SIU 1*, USEPA stated that the elimination of Alternatives that did not meet the Purpose and Need was acceptable. A purely qualitative use of the remaining criteria, however, raised the question of how the various criteria would be applied and of how statutory considerations would be weighed against non-statutory ones.

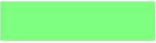
To address the concerns expressed by the USEPA, continued consultation with the Agencies, including those with statutory authority over the various aspects of the environment potentially affected by the proposed I-49 South, was conducted. Identifying alignments that were candidates for the least damaging, yet practicable Build Alternative was the goal of these deliberations. As evidence, several Build Alternatives were discarded based on comments from the Agencies, a Preferred Alternative was selected for study in the DEIS was reviewed and accepted at Coordination Meetings among FHWA, DOTD, and the Agencies. The minutes of these meetings are found in **Appendix 2-E** on the enclosed CD.

PLATE LEGEND:

	ELEVATED ROADWAY	R	RESIDENCE
	ROADWAY AT GRADE	R	RESIDENCE TO BE TAKEN
	EXISTING ROADWAY TO REMAIN	BUSINESS	BUSINESS
	PAVEMENT REMOVAL	BUSINESS	BUSINESS TO BE TAKEN
	EXISTING RAILROAD		NOISE METER LOCATION
	RELOCATED RAILROAD		
	APPROXIMATE LIMITS OF EXISTING PROPERTY		
	APPROXIMATE LIMITS OF EXISTING RIGHT-OF-WAY		
	APPROXIMATE LIMITS OF ADDITIONAL REQUIRED RIGHT-OF-WAY		
	APPROXIMATE LIMITS OF EXISTING CONTROL-OF-ACCESS FENCE (TO REMAIN)		
	APPROXIMATE LIMITS OF EXISTING CONTROL-OF-ACCESS FENCE (TO BE REMOVED)		
	APPROXIMATE LIMITS OF REQUIRED CONTROL-OF-ACCESS FENCE		

NOTE:

CONTROL-OF- ACCESS SHALL BE THE FASCIA OF THE BRIDGE STRUCTURE ON ALL ELEVATED ROADWAYS.

 AREAS WITH SPECIAL PROTECTION OF NATURAL RESOURCES AND/OR USED FOR RECREATION. SOME OF THESE AREAS MAY NOT BE REGULATED BY SECTION 4(f) OF THE U.S. DEPARTMENT OF TRANSPORTATION ACT.

350+00
 STATIONS ARE THE MEASURE OF DISTANCE ALONG PROPOSED ROUTES. I.E. STATION 10+00 REPRESENTS 1,000 FEET. THE INTERMEDIATE TICK MARKS INDICATE EVERY 500 FEET.

 POINT OF CURVE. THESE CIRCLES INDICATE THE BEGINNING AND END OF EACH CURVE ALONG THE PROPOSED ROUTES.

CURVE

(2B-01)

P.I. = STA.
 $\Delta = 8^{\circ}21'25''$
 $D = 0^{\circ}22'0''$
 $T = 1141.60'$
 $L = 2279.15'$
 $R = 15626.12'$

CURVE DATA PRESENTS ENGINEERING DATA DESCRIBING THE GEOMETRY OF THE CURVES ALONG THE PROPOSED ROUTES.